StormSmart Coasts:
Making Storm-Resilient Communities a Reality in Massachusetts

A Proposal to:

The National Oceanic and Atmospheric Administration Coastal Services Center
2008-2010 Coastal Management Fellowship Program

Submitted by:

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Background and Introduction

The 78 coastal communities in Massachusetts are vulnerable to the damaging impacts of major storms, such as northeasters and hurricanes, along more than 1,500 miles of varied coastline. These storms can have devastating consequences, potentially resulting in loss of life, extensive property damage, destruction of public infrastructure, and environmental impacts associated with the release of sewage, oil, debris, and other contaminants. As coastal development increases, even less-intense storms that occur more frequently are leading to costly storm damage. These potential impacts are compounded by relative sea level rise and increased sprawl development along an already highly developed coast. Redevelopment with more expansive structures and impervious surfaces along the coast is another area of concern, as well as an area of opportunity for the use of storm damage prevention techniques, such as low impact development.

While Massachusetts has a variety of state-level regulatory and technical assistance efforts to address coastal storm damage prevention, the future of coastal resiliency is in the hands of its 78 coastal communities. Governed by local officials who frequently lack the necessary experience, and faced with limited staff, these communities are in need of "real world" regulatory models, targeted tools and expertise to move toward a true storm-resilient community approach. While state and national programs and strategies provide benefit in identifying the problem and potential solutions, to be successful, storm resiliency must ultimately be effectively implemented at the local level. To reach this goal in Massachusetts, the critical gaps that exist at the local level must be filled by providing guidance and support for proper planning, site design practices and mitigation that resolve the unique but different challenges for new development and redevelopment.

The importance of promoting local efforts has been recognized by the Coastal Hazards Commission (CHC), which was convened in 2006. Mandated by the state legislature, the CHC (made up of state legislators, state agency decision makers, and local officials) was charged with developing recommendations for addressing coastal hazards issues in Massachusetts. In May of 2007, the CHC released its recommendations (see http://mass.gov/czm/chc/index.htm for more on the CHC and a full list of recommendations). Among the four top-priority recommendations of the commission was that Massachusetts should: **establish a storm-resilient communities program to provide case studies for effective coastal smart growth planning and implementation.**

The need to provide greater levels of technical assistance to communities struggling with coastal floodplain management issues has also been recognized by the Massachusetts Office of Coastal Zone Management (CZM). To address the problem, CZM submitted a successful application for a National Oceanic and Atmospheric Administration Coastal Services Center (CSC) Fellow in the 2006 grant round. Through what is now named the StormSmart Coasts program, the Fellow is developing planning, policy, regulatory, and technical assistance tools to improve coastal floodplain management in Massachusetts at the local level.

The StormSmart Coasts program is based on the No Adverse Impact (NAI) approach, which was first articulated in a 2000 Association of State Floodplain Managers (ASFPM) white paper (available at www.floods.org). This forward-thinking, fair, and legally defensible approach ensures that the action of any property owner, public or private, does not adversely impact the property and rights of others. In its broadest sense, NAI protects the rights of residents, businesses, and visitors in a community by requiring that public and private projects be designed and completed in such a way

that they do not: 1) pose a threat to public safety, 2) increase flood or storm damage to public or private property, and/or 3) strain municipal budgets by raising community expenditures for storm-damage mitigation, stormwater management, emergency services, and disaster recovery efforts.

The StormSmart Coasts Fellow, Wes Shaw, has developed a wide selection of coastal floodplain management tools that translate technical information developed by ASFPM into a range of specific, user-friendly options for addressing seven implementation areas: hazard identification and mapping, planning, regulations, mitigation and shore protection, infrastructure, emergency services, and education and outreach. Specifically, several fact sheets have been developed, including one that was drafted with nationally recognized attorney Ed Thomas, Esq., summarizing the legal framework for managing coastal floodplains, especially as it pertains to municipal governments. Wes received an award at the annual national conference of ASFPM for this fact sheet and his pro-active efforts in floodplain management.

In addition to several other fact sheets, Wes is developing a website, which will provide a menu of floodplain management tools for appropriate local boards and departments in coastal communities. (See: http://stormsmarttest.googlepages.com/rrdisclaimer for the draft site.) The website logically "packages" this range of floodplain management information, offering one-stop shopping for local officials who typically must search for across numerous websites. Finally, Wes has been working with networks of local officials on the North Shore, South Shore, and Cape Cod to identify their specific needs in coastal floodplain management. The networks have also served as reviewers for the StormSmart Coasts products, which allows for successful ground-truthing to ensure that these materials meet audience needs. The network in the South Shore was established this year by the CZM's Regional Coordinator and Wes as a "one meeting only" for project input. However, enthusiasm for the project and the empowerment of problem-solving through a regional group turned a one-time get together into a monthly network.

Creating storm-resilient communities is a national priority, which is keenly felt in Massachusetts. Thanks to our current CSC Fellow, we are poised to actively implement coastal floodplain management tools that can make storm-resilient communities a reality. Such direct implementation experience at the local level can then be used to develop models for other communities throughout Massachusetts and the nation for real-world change.

Goals and Objectives

The goals of this project are to: work directly with selected coastal communities to implement StormSmart Coasts floodplain management tools, use this experience to help successfully transfer these tools throughout the remainder of the state, and develop a national model for storm-resilient community implementation. The major objectives of the project are to:

1) Identify three to five coastal communities to serve as models for implementing StormSmart Coasts tools at the local level.
2) Establish a StormSmart Coasts Working Group composed of local officials from each of these targeted coastal communities. This group will include members from the numerous boards and departments with separate authorities and responsibilities for coastal floodplain management.

3) Work with these communities to develop implementation plans for the project.
4) Provide technical assistance and support to these communities throughout the implementation process.
5) Meet quarterly with the three established regional networks of local officials to inform them of the efforts in these targeted communities, and seek information on the kind of tools and resources they need to ensure successful future transfer of StormSmart Coasts tools to their region.
6) Write case studies based on the experience with the targeted coastal communities, including, problem resolution and keys to success.
7) Based on the implementation experience and obstacles resolved in the targeted communities, develop blueprints for successfully implementing each selected StormSmart Coasts tool and technique.
8) Update and revise the StormSmart Coasts website to include the case studies, blueprints for tool and technique implementation, and outreach materials, as well as to enhance and improve the tools based on the real-world implementation experience received through the rest of the project.

Project Description, Milestones, and Outcomes

To develop an in-depth understanding of the StormSmart Coasts program, the Fellow will work with Wes Shaw through the last stages of his project. (Due to the late start of Wes's Fellowship, the two Fellows will overlap for the month of August, 2008.) This training period will include attending regional workshops conducted by Wes to present the StormSmart Coasts program to local officials, and assisting with updates to or expansion of the StormSmart Coasts website and fact sheets based on local feedback. This month-long overlap will allow the "torch to be passed" from the person who designed the program and his mentors to the person who will implement it at the local level. It also provides a unique opportunity for Fellow-to-Fellow mentoring, providing a strong foundation for the new Fellow to successfully pursue the project. One of Wes's mentors will also mentor the new Fellow, ensuring project consistency. After this training phase, the Fellow will proceed with the project as follows:

Task 1 - Select Communities for Targeted Technical Assistance

Through the StormSmart Coasts workshops and follow-up discussions with CZM regional networks of local officials, the Fellow will seek volunteer communities to serve as implementation models. Ideally, one community from each of CZM's five regions will be selected. However, the needs and capacity of the communities will be taken into consideration to help ensure that selected communities have the technical and political capacity for successful implementation of coastal floodplain management tools, with targeted technical assistance from the Fellow. The CZM Mentor, CZM Regional Coordinators, and CZM management will all assist in the community selection process.

Outcomes and Milestones: Three to five communities selected for targeted technical assistance. *(Completed by September 2008)*

Task 2 - Establish a StormSmart Coasts Working Group

Identify key local officials from each targeted coastal community that serve on the various boards and departments with separate (under state and local laws) authorities and responsibilities for coastal floodplain management (e.g., Conservation Commissions, Building Inspectors, Planning Boards, Departments of Public Works,, and Boards of Health). Convene the group bi-monthly to share information and progress, problem solve, and receive feed back at critical project phases.

Outcomes and Milestones: The Working Group will provide critical feedback in each step of the project, resolving local concerns at an early stage, reaching consensus, and ensuring long-term stewardship. It will also empower the various local boards and departments by sharing experiences, discussing local successes and progress, and identifying approaches used in other communities to overcome obstacles. *(Ongoing throughout the project)*

Task 3 - Develop Community Implementation Plans

A range of tools have been developed through the StormSmart Coasts program. The Fellow, with the CZM Mentor and appropriate CZM Regional Coordinator, will work with interested local officials and business leaders in the selected communities to identify community needs, resources, and constraints/obstacles to success. The CZM team will then make recommendations to each selected community on appropriate StormSmart Coasts tools to pursue, and work together to develop a community implementation plan, which will be written by the Fellow.

Outcomes and Milestones: An implementation plan for each of the communities selected for targeted technical assistance. (*Completed by December 2008*)

Task 4 - Provide Targeted Technical Assistance

The Fellow will work directly with each selected community to implement coastal floodplain management tools, based on the plans developed in Task 3. The Fellow's efforts will be guided by the CZM Mentor, the project team, and the StormSmart Coasts Working Group, and supported by appropriate experts (e.g., coastal geologists, emergency management experts, GIS technicians). Tasks to be conducted could include, but may not be limited to:

- Developing technical guidance, regulatory guidelines, and fact sheets for coastal Low Impact Development approaches, including site design and stormwater best management practices specific to coastal floodplains, and pertaining to both new and re- development.
- Drafting performance standards for new development and/or re-development.
- Writing model coastal floodplain management bylaws, amendments, and/or regulations that reflect the NAI approach.
- Evaluating mitigation measures for developed areas.
- Assessing potential damage to public and private infrastructure in a major coastal storm.
- Recommending Low Impact Development modifications to municipal infrastructure to reduce storm damage potential.

- Developing education and outreach strategies and materials to inform community residents of available storm damage prevention options.
- Writing model grant applications for funding to implement StormSmart Coasts tools.

In addition, the Fellow will work with the communities to raise public awareness and acceptance of each tool and technique pursued, ensure adoption of new polices and regulatory tools, and establish long-term stewardship as the local authorities move forward in the implementation process.

Outcomes and Milestones: Implementation of coastal floodplain management tools from the StormSmart Coasts program at the local level. *(This phase of the project will be completed by May 2010 to ensure time for completion of Tasks 5-7)*

Task 5 - Lay Groundwork with Regional Networks for Future Project Transferability

Currently, CZM convenes regional networks of local officials (members and staff of conservation commissions, boards of health, building inspectors, etc.), and works closely with similar networks convened by agency partners. The Fellow will attend these network meetings on a quarterly basis to inform members of progress with the StormSmart Coasts program. These updates will help ensure the smooth transfer of coastal floodplain management tools to other communities as a result of this project, because the Fellow will solicit feedback on the needs of these communities to refine the case studies and implementation blueprints developed in Tasks 6 and 7) and identify priorities for updating the StormSmart Coasts website (see Task 8). Finally, the Fellow will be available to provide direct technical assistance through these meetings, and serve as a liaison to connect local officials with other experts who can assist them in their efforts.

Outcomes and Milestones: Periodic meetings providing direct technical assistance to local officials, enhancing future transfer of project results, and ensuring that the ultimate products produced through this project meet audience needs. *(Ongoing throughout the project)*

Task 6 - Write Case Studies

The Fellow will write a case study for each of the coastal communities selected for targeted technical assistance to help refine the implementation process in and avoid obstacles experienced by other communities looking to adopt these tools. These case studies will describe the community, its coastal floodplain management issues, and its experience with implementing StormSmart Coasts tools. The purpose of the case studies will be to provide specific information on what did (and perhaps more importantly, what didn't) work, along with successful problem-resolutions strategies used to help win resident and business acceptance of coastal floodplain management. The inclusion of Low Impact Development practices for both new and re-development will make these case studies unique.

Outcomes and Milestones: Three to five case studies. *(Completed by June 2010)*

Task 7 - Develop Blueprints for Implementing StormSmart Coasts Tools

Through the experience and advice received through this project, the Fellow can develop blueprints for effectively implementing selected StormSmart Coasts tools and techniques. Based on real-world experience, these blueprints will provide "how-to" information for other communities looking to implement these tools.

Outcomes and Milestones: Written blueprints form implementing each of the StormSmart Coasts Tools selected by the targeted communities. *(Completed by July 2010)*

Objective 8 - Update StormSmart Coasts Website

The StormSmart Coasts website was designed to be an effective and ongoing mechanism to provide technical assistance on coastal floodplain management. The tools were developed through rigorous research, coupled with extensive ground-truthing with local and state experts. In going from the theory to practice through this project, much will be learned about these tools and how to successfully implement them. To capture lessons learned and transfer them to those looking to implement the tools in the future, the Fellow will update the StormSmart Coasts website as necessary. In addition, the Fellow will post the implementation strategies developed in Task 5, and the case studies developed in Task 6, on the website.

Outcomes and Milestones: Updated website. *(Completed by the end of August 2010)*

Fellow Mentoring

CZM will serve as the host agency for the Fellow. CZM staff members are involved in a variety of coastal hazards resource planning, management, and research activities, providing many opportunities for professional development. CZM is also active in land-use planning issues through its Coastal Smart Growth Program.

The Mentor for the Fellow will be Andrea Cooper, CZM's Coastal Smart Growth Coordinator. Andrea has extensive experience in coastal resource issues, land-use planning, Smart Growth, and Low Impact Development and has successfully mentored two previous CSC Fellows. She provides the real-world knowledge and adaptive and creative approach necessary to refine project plans for effective implementation at the local level. (See http://mass.gov/czm/smartgrowth/index.htm for details on Andrea's Coastal Smart Growth Program.) In addition, she is skilled in building technical capacity at the local level, as well as in coalition building.

CZM's Coastal Smart Growth Program has won national acclaim, with initiatives featured in national magazines, journals, and recently a university textbook. One of the program's initiatives received a U.S. Environmental Protection Agency national smart growth award, and was recognized at the National Home Builders Association's 2007 conference. This award-winning program offers an excellent support system for the fellow to successfully transfer the StormSmart Coasts tools and techniques to coastal communities committed to Smart Growth.

In addition, CZM's coastal geology, project review, regional coordination, data management, and outreach staff will provide assistance as necessary to ensure the Fellow's success. This fellowship project provides a unique opportunity to go beyond project design into actual implementation at the local level. The results will serve as a state and national model for storm-resilient communities.

Through this project, we offer the Fellow the unique opportunity of working directly with nationally recognized legal and technical experts. These include Ed Thomas, considered the foremost NAI attorney in America; senior managers at ASFPM; and Neil Weinstein, Executive Direct of the National Low Impact Development Center. These relationships have been established by our Smart Growth Coordinator and Wes Shaw, who are active and experience in building coalitions that pool technical and financial resources to ensure real-world change.

We further offer the Fellow the rare opportunity to step into a program with a strong, viable, and successful foundation as a result of Wes's talents and accomplishments in his Fellowship project. The Fellow will not just be working with state and national experts to develop realistic management strategies for true on-the-ground change, but also working directly with the local authorities that must adopt and successfully implement these tools. The Fellow will have the extraordinary experience of seeing policy-making become reality, knowing that his/her work has made a real difference in making resilient coastal communities.

The Fellow's project will be a national model and therefore be a boost for his/her career, and will provide the chance to network with other state coastal program who are interested in transferring this project.

CZM has benefited greatly from NOAA Coastal Fellows in the past. Several have stayed beyond their two-year terms as contractors or permanent employees. CZM looks forward to continued success with this program.

Finally, CZM has had tremendous success with mentoring our current Fellow through the development of the StormSmart Coasts program. A fully functioning and supportive team is in place to support the new Fellow as he or she moves forward into implementation. The Fellow will benefit from being able to "hit the ground running," thanks to the foundation provided by the work of Wes Shaw. Through this project approach, the Fellow will have the opportunity for tremendous professional growth, not only within the very important emerging issue of coastal resiliency, but also on a broader scale. The Fellow will gain a depth and breadth of experience in providing technical assistance, education and outreach, coalition building, project design and development, problem solving, and adaptive implementation.

Project Partners

In addition to working with the three to five selected coastal communities, the Fellow will work with other state agencies looking to implement the recommendations of the Coastal Hazards Commission. These agencies include the Executive Office of Energy and Environmental Affairs, the Department of Conservation and Recreation, the Department of Environmental Protection, and the Massachusetts Emergency Management Agency. The Fellow will also work with partners from the Coastal Smart Growth Program, including the Low Impact Development Working Group

(which includes over 100 government agencies, conservation organization, and private consulting corporations). Finally, the Fellow will coordinate with Massachusetts Coastal Training Program to promote the coastal floodplain implementation tools created through this project.

Cost Share Description

CZM will provide the match for the proposed fellow through state bond (capital) funding. The annual $7,500 match requirement will be incorporated in CZM's annual capital spending request. This funding is granted annually and is considered a "fixed" or consistent cost. It is not subject to cutbacks and is a portion of the state's financial commitment to CZM. CZM will also provide the Fellow with office space and equipment, technical support, telephone and internet service, and a variety of in-kind support through the project team.

Thematic Area

This project is designed around Thematic Area iii - Outreach projects aimed at improving decision makers' understanding of resilience concepts and applications. CZM is tremendously encouraged by the success of the current CSC Fellow in developing the StormSmart Coasts program and its menu of tools for coastal floodplain management. However, these tools, while based on sound research and proactive ground-truthing, have not yet been tested in Massachusetts. Successful implementation of these tools will require a focused and potentially adaptive approach, which would benefit greatly from targeted technical assistance. Through the two-year dedicated effort of the Fellow, implementation issues can be identified, and the tools can be revised to reflect real-world realities. In addition, the implementation strategies and case studies developed will help pave the way for successful implementation of these coastal floodplain management tools in other Massachusetts communities, and nationwide.

While this project gives the selected communities a tremendous opportunity to successfully forward coastal floodplain management, working with these communities will provide significant and lasting benefits to the StormSmart Coasts program. This partnership will allow CZM to determine what really works at the local level—which is the key to successfully initiating storm-resilient communities in Massachusetts and beyond.